

Appln. No. 10/523,920  
Amd. dated September 9, 2010  
Reply to Office Action of January 27, 2010  
and Advisory Action of April 29, 2010

### **Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

1. **(Currently amended)** A process for producing 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid, comprising the steps of:

allowing  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme together with or without cyclomaltodextrin glucanotransferase (EC 2.4.1.19) to act on a solution comprising L-ascorbic acid and liquefied starch having a dextrose equivalent (DE) of less than 10 to obtain a reaction mixture containing 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid in an amount of 10% (w/w) or higher ~~wherein the reaction mixture also contains and~~ each of 5-O- $\alpha$ -glucopyranosyl-L-ascorbic acid and 6-O- $\alpha$ -glucopyranosyl-L-ascorbic acid in an amount of less than 0.1% (w/w), on a dry solid basis; and

collecting the 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid from the reaction mixture;

wherein said  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme has an activity of forming a saccharide with a glucose polymerization degree of 3 or higher and bearing both the  $\alpha$ -1,6 glucosidic linkage as a linkage at the non-reducing end and the  $\alpha$ -1,4 glucosidic linkage other than the linkage at the non-reducing end from

Appln. No. 10/523,920  
Amd. dated September 9, 2010  
Reply to Office Action of January 27, 2010  
and Advisory Action of April 29, 2010

a saccharide with a glucose polymerization degree of 2 or higher and bearing the  $\alpha$ -1,4 glucosidic linkage as a linkage at the non-reducing end by  $\alpha$ -glucosyl-transferring reaction without increasing the reducing power of the reaction mixture; wherein said  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme is obtained from the genus *Arthrobacter globiformis*.

2. **(Previously presented)** The process of claim 1, wherein glucoamylase (EC 3.2.1.3) is allowed to act on the reaction mixture after the action of  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme on said solution together with or without cyclomalodextrin glucanotransferase.

Claims 3-5. **(Cancelled)**

6. **(Previously presented)** The process of claim 1, wherein the step of collecting 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid comprises a step of using a strongly-acidic cation exchange resin.

7. **(Previously presented)** The process of claim 1, wherein the formed 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid is collected in the form of a syrup, a powder, or a crystal.

Claims 8-20. **(Cancelled)**

21. **(Previously presented)** The process of claim 6, further comprising pulverizing or crystallizing the 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid.

Claims 22-23. **(Cancelled)**

24. **(New)** A process for producing 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid, comprising the steps of:

allowing  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme together with or without cyclomaltodextrin glucanotransferase (EC 2.4.1.19) to act on a solution comprising L-ascorbic acid and liquefied starch with a dextrose equivalent (DE) of about 6 or lower to obtain a reaction mixture containing 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid in an amount of 10% (w/w) or higher and each of 5-O- $\alpha$ -glucopyranosyl-L-ascorbic acid and 6-O- $\alpha,\alpha$ -glucopyranosyl-L-ascorbic acid in an amount of less than 0.1% (w/w), on a dry solid basis; and

collecting the 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid from the reaction mixture;

wherein said  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme has an activity of forming a saccharide with a glucose polymerization degree of 3 or higher and bearing both the  $\alpha$ -1,6 glucosidic linkage as a linkage at the non-reducing end and the  $\alpha$ -1,4 glucosidic linkage other than the linkage at the non-reducing end from a saccharide with a glucose polymerization degree of 2 or higher and bearing the  $\alpha$ -

Appln. No. 10/523,920  
Amd. dated September 9, 2010  
Reply to Office Action of January 27, 2010  
and Advisory Action of April 29, 2010

1,4 glucosidic linkage as a linkage at the non-reducing end by  $\alpha$ -glucosyl-transferring reaction without increasing the reducing power of the reaction mixture; wherein said  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme is obtained from *Arthrobacter globiformis*.

25. **(New)** The process of claim 24, wherein glucoamylase (EC 3.2.1.3) is allowed to act on the reaction mixture after the action of  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme on said solution together with or without cyclomalodextrin glucanotransferase.

26. **(New)** The process of claim 24, wherein the step of collecting 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid comprises a step of using a strongly-acidic cation exchange resin.

27. **(New)** The process of claim 24, wherein the formed 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid is collected in the form of a syrup, a powder, or a crystal.

28. **(New)** The process of claim 26, further comprising pulverizing or crystallizing the 2-O- $\alpha$ -glucopyranosyl-L-ascorbic acid.